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diketopiperazine and particle adj3 size 196

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| <u>L8</u> | diketopiperazine and particle adj3 size | 196 | <u>L8</u> |
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| <u>L6</u> | diketopiperazine and inhal\$ and particle adj3 size | 25 | <u>L6</u> |
| <u>L5</u> | L4 and particle adj3 size | 159 | <u>L5</u> |
| <u>L4</u> | 11 and (nasal or powder) | 225 | <u>L4</u> |
| <u>L3</u> | 11 and nasal | 25 | <u>L3</u> |
| <u>L2</u> | diketopiperazine same (microparticle\$ or particle\$) | 40 | <u>L2</u> |
| <u>L1</u> | diketopiperazine and (microparticle\$ or particle\$) | 309 | <u>L1</u> |

END OF SEARCH HISTORY

Aug 9 9

L3: Entry 8 of 25

File: USPT

Dec 10, 2002

DOCUMENT-IDENTIFIER: US 6492553 B1

TITLE: Methods for preparing N-[(aliphatic or aromatic)carbonyl)]-2-aminoacetamide compounds and for cyclizing such compounds

Brief Summary Text (4):

Diketopiperazines are known to be ligands of neurokinin-2 receptors and neurokinin-3 receptors (Gordon, D. W.; Steele, J. Bioorg. Med. Chem. Lett., 1995, 5, 47. (b) Terrett, N. K.; Gardner, M.; Gordon, D. W.; Kobylecki, R. J.; Steele, J., Tetrahedron, 1995, 51, 8135) and are useful in the treatment of asthma, inflammation, Parkinsons disease, anxiety, psychosis, epilepsy and pain.

Brief Summary Text (17):

to produce the N-[(aliphatic or aromatic)carbonyl)]-2-aminoacetamide compound. The invention is also directed to a method for cyclizing an N-[(aliphatic or aromatic)carbonyl)]-2-aminoacetamide compound to a cyclic compound selected from the group consisting of a 1,4-benzodiazepine-2,5-dione derivatives, diketopiperazine derivatives, ketopiperazine derivatives, lactam derivatives, 1,4-benzodiazepine derivatives and dihydroquinoxalinones derivative, cyclic ureas, hydantoins, as well as to the cyclized compound per se.

Brief Summary Text (95):

"Formulations suitable for nasal or inhalational administration" means formulations which are in a form suitable to be administered nasally or by inhalation to a patient. The formulation may contain a carrier, in a powder form, having a particle size, for example, in the range 1 to 500 microns (including particle sizes in a range between 20 and 500 microns in increments of 5 microns such as 30 microns, 35 microns, etc.) Suitable formulations wherein the carrier is a liquid, for administration as, for example, a nasal spray or as nasal drops, include aqueous or oily solutions of the active ingredient. Formulations suitable for aerosol administration may be prepared according to conventional methods and may be delivered with other therapeutic agents. Inhalational therapy is readily administered by metered dose inhalers.

Brief Summary Text (99):

"Formulations suitable for systemic administration" means formulations which are in a form suitable to be administered systemically to a patient. The formulation is preferably administered by injection, including transmuscular, intravenous, intraperitoneal, and subcutaneous. For injection, the compounds of the invention are formulated in liquid solutions, preferably in physiologically compatible buffers such as Hank's solution or Ringer's solution. In addition, the compounds may be formulated in solid form and redissolved or suspended immediately prior to use. Lyophilized forms are also included. Systemic administration also can be by transmucosal or transdermal means, or the compounds can be administered orally. For transmucosal or transdermal administration, penetrants appropriate to the barrier to be permeated are used in the formulation. Such penetrants are generally known in the art, and include, for example, bile salts and fusidic acid derivatives for transmucosal administration. In addition, detergents may be used to facilitate permeation. Transmucosal administration may be through use of nasal sprays, for example, or suppositories. For oral administration, the compounds are formulated into conventional oral administration forms such as capsules, tablets, and tonics.

Brief Summary Text (138):

"Solid support" is represented as "{character pullout}" and means a substrate which is inert to the reagents and reaction conditions described herein, as well as being substantially insoluble in the media used. Representative solid supports include inorganic substrates such as kieselguhr, silica gel, and controlled pore glass; organic polymers including polystyrene, including 1-2% copolystyrene divinyl benzene

(gel form) and 20-40% copolystyrene divinyl benzene (macro porous form), polypropylene, polyethylene glycol, polyacrylamide, cellulose, and the like; and composite inorganic/polymeric compositions such as polyacrylamide supported within a matrix of kieselguhr particles. See J. M. Stewart and J. D. Young, *Solid-phase Peptide Synthesis*, 2nd. Ed., Pierce Chemical Co. (Chicago, Ill., 1984).

Brief Summary Text (150):

One particular aspect of the present invention is directed to a method for preparing a cyclized compound selected from group of formulae consisting of 1,4-benzodiazepine-2,5-dione derivatives of general formulae (I), and (VII), diketopiperazine derivatives of general formula (II), ketopiperazine derivatives and dihydroquinoxalinone derivatives of general formula (III) and (VIII), dihydroimidazole derivatives of general formula (IV), lactam derivatives of general formula (V), 1,4-benzodiazepine-2,5-dione diketopiperazine derivatives of formula (VI), ketopiperazine derivatives of formula (XLII), cyclic urea derivatives of general formulae (L) and (LIII), and hydantoin derivatives of general formula (LV):--. ##STR6## ##STR7##

Brief Summary Text (180):

In another aspect, this invention is directed to the preparation of 1,4-benzodiazepine-2,5-dione derivatives of general formulae (I) and (VI), diketopiperazine derivatives of general formula (II), ketopiperazine derivatives and dihydroquinoxalinone derivatives of general formula (III) and (VIII), dihydroimidazole derivatives of general formula (IV), lactam derivatives of general formula (V), cyclic urea derivatives of general formulae (L) and (LIII), and hydantoin derivatives of general formula (LV), by solid phase synthesis employing the Ugi multi-component reaction (MCR) (Ugi, I., *Angew. Chem. Int. Ed. Engl.*, 1962, 1, 8) using an isonitrile functionalized polymer resin linker (IXa) as described herein, followed by amine deprotection, cleavage from the resin and cyclization. The alkoxide and hydroxide safety-catch clipping strategy and subsequent solution phase cyclization offers similar advantages to a traceless linker (Plunkett, M. J.; Ellman, J. A. *J. Org. Chem.* 1995, 60, 6006; Hulme, C.; Peng, J.; Morton, G.; Salvino, J. M.; Herpin, T.; Labaudiniere, R. *Tetrahedron Lett.* 1998, 39,) in that no constant functionality derived from clipping remains at the end of the synthetic protocol.

Brief Summary Text (182):

In another aspect, this invention is directed to the preparation and use of a novel resin bound isonitrile (IXa), deployed as a novel safety catch linker (Backes, B. J., Virgilio, A. A., Ellman, J. A. *J. Am. Chem. Soc.* 1996, 118, 3055; Kenner, G. W., McDermott, J. R., Sheppard, R. C. *J. Chem. Soc., Chem. Commun.* 1971, 636.) in the preparation of 1,4-benzodiazepine-2,5-dione derivatives of general formulae (I), (VI) and (VII), diketopiperazine derivatives of general formula (II), ketopiperazine derivatives and dihydroquinoxalinone derivatives of general formula (III) and (VIII), dihydroimidazole or imidazoline derivatives of general formula (IV), and lactam derivatives of general formula (V). ##STR8##

Brief Summary Text (220):

The pharmaceutical compositions can be administered in a suitable formulation to humans and animals by topical or systemic administration, including oral, inhalational, rectal, nasal, buccal, sublingual, vaginal, parenteral (including subcutaneous, intramuscular, intravenous, intradermal, intrathecal and epidural), intracisternal and intraperitoneal. It will be appreciated that the preferred route may vary with, for example, the condition of the recipient.

Detailed Description Text (16):

Equal amounts (0.1 ml) of 0.1 M solutions of the four appropriate components compound of formulae (XXII), (XV), (XVI) and (IXb), are employed generating a theoretical 10 .mu.mol of final diketopiperazine product (II) for 100% conversion. The 4-component condensation is performed in methanol at room temperature and the solvent evaporated at 65.degree. C. (using a SAVANT.RTM. evaporator for 2 hours). The deprotection/cyclization steps are performed using either a 10% solution of acetyl chloride in methanol, or a 10% solution of trifluoroacetic acid in dichloroethane, and a 5% solution of diethylamine in dichloroethane [Note: 10-15 mg of N,N-(diisopropyl)amino-methylpolystyrene(PS-DIEA) is an excellent resin bound alternative to diethylamine]. Solvents are then evaporated at 65.degree. C. to afford

the cyclized products of formula(II).

Detailed Description Text (47):

General Solution Phase Synthesis of Diketopiperazine Compounds of Formula (VI) via the '3-step, One Pot' Procedure, Employing the Ugi Multi-component Reaction

Detailed Description Text (48):

Equal amounts (0.1 ml) of 0.1 M solutions of the four appropriate components compound of formulae (XIV), (XXXVII), (XVI) and (IX), are employed generating a theoretical 10 .mu.mol of final 1 Diketopiperazine product (VI) for 100% conversion. The 4-component condensation is performed in methanol at room temperature and the solvent evaporated at 65.degree. C. (using a SAVANT.RTM. evaporator for 2 hours). The deprotection/cyclization steps are performed using either a 10% solution of acetyl chloride in methanol, or a 10% solution of trifluoroacetic acid in dichloroethane, and heat, to afford the cyclized products. Examples of products (examples 96 to 112) synthesized using this general methodology are indicated below and purities are determined by lc/ms (liquid chromatography/mass spectrometry) ELSD (evaporative light scattering detector) A% and UV A%. Lc/ms analysis is performed using a C18 Hypersil BDS 3 m 4.6.times.50 mm column (UV 220 nm) with a mobile phase 0.1% TFA IN H.sub.2 O/CH.sub.3 CN 10% to 100% 5 min, at a rate of 1 ml/min (Examples 96 to 99), or a mobile phase 5 mM NH.sub.4 OAC.H.sub.2 O/CH.sub.3 CN 10% to 100% 5 min, at a rate of 1 ml/min (Examples 100 to 112). HPLC is interfaced with APCI techniques (Atmospheric Pressure Chemical Ionization). Desired products are seen as (M+1).

Detailed Description Text (75):

Equal amounts (0.1 ml) of 0.1M solutions of the four appropriate components, ethyl glyoxalate (XXXVII), an isonitrile of formula (XVI), an amine (XVI) and di-BOC protected N-mono-BOC arginine (XIV), are employed generating a theoretical 10 .mu.mol of final diketopiperazine product (VI) for 100% conversion. The 4-component condensation is performed in methanol at room temperature and the solvent evaporated at 65.degree. C. (using a SAVANT.RTM. evaporator for 2 hours) The deprotection/cyclization steps are performed using either a 10% solution of acetyl chloride in methanol, or a 10% solution of trifluoroacetic acid in dichloroethane, and heat, to afford the cyclized products. Examples of products (examples 140 to 160) synthesized using this general methodology are indicated below and purities are determined by lc/ms (liquid chromatography/mass spectrometry) ELSD (evaporative light scattering detector) A%. Lc/ms (liquid chromatography/mass spectrometry) analysis is performed using a C18 Hypersil BDS 3 m 4.6.times.50 mm column (UV 220 nm) with a mobile phase 0.1% TFA IN H.sub.2 O/CH.sub.3 CN 10% to 100% 5 min, at a rate of 1 ml/min. HPLC is interfaced with APCI techniques (Atmospheric Pressure Chemical Ionization). Desired products are seen as (M+1).


PALM INTRANET

 Day : Friday
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Inventor Name Search Result

Your Search was:

Last Name = STEINER

First Name = SOLOMON

| Application# | Patent# | Status | Date Filed | Title | Inventor Name |
|--------------------------|-------------------------|--------|------------|---|----------------------|
| 07883562 | Not Issued | 166 | 05/15/1992 | DELIVERY SYSTEMS FOR PHARMACOLOGICAL AGENTS ENCAPSULATED WITH PROTEINOIDS | STEINER , SOLOMON |
| 08252979 | RE35862 | 150 | 06/02/1994 | DELIVERY SYSTEMS FOR PHARMACOLOGICAL AGENTS ENCAPSULATED WITH PROTEINOIDS | STEINER , SOLOMON |
| 07510936 | 5197490 | 150 | 04/19/1990 | INFORMATION PROCESSING SYSTEM FOR COUNTING COUGHS OR EVALUATING OTHER ACTIVITIES OF A PATIENT | STEINER , SOLOMON S. |
| 08095938 | Not Issued | 161 | 07/22/1993 | CDNA PHOTOFLUOR PROBE AND METHODS OF MAKING, ASSAYING AND USING SAME | STEINER , SOLOMON S. |
| 06897361 | Not Issued | 168 | 08/18/1986 | DELIVERY SYSTEMS FOR PHARMACOLOGICAL AGENTS | STEINER , SOLOMON S. |
| 07849186 | 5352461 | 150 | 03/11/1992 | SELF ASSEMBLING DIKETOPIPERAZINE DRUG DELIVERY SYSTEM | STEINER , SOLOMON S. |
| 08441378 | 6428771 | 150 | 05/15/1995 | METHOD FOR DRUG DELIVERY TO THE PULMONARY SYSTEM | STEINER , SOLOMON S. |
| 07098027 | 4925673 | 250 | 09/08/1987 | DELIVERY SYSTEMS FOR PHARMACOLOGICAL AGENTS ENCAPSULATED WITH PROTEINOIDOS | STEINER , SOLOMON S. |
| 07315440 | 4976968 | 150 | 02/24/1989 | ANHYDROUS DELIVERY SYSTEMS FOR PHARMACOLOGICAL AGENTS | STEINER , SOLOMON S. |
| 08299842 | 5503852 | 150 | 09/01/1994 | METHOD FOR MAKING SELF-ASSEMBLING DIKETOPIPERAZINE DRUG DELIVERY SYSTEM | STEINER , SOLOMON S. |

| | | | | | |
|-----------------|----------------|-----|------------|--|----------------------|
| <u>07177498</u> | <u>4895725</u> | 250 | 04/04/1988 | MICROENCAPSULATION OF FISH OIL | STEINER , SOLOMON S. |
| <u>60145464</u> | Not Issued | 159 | 07/23/1999 | UNIT DOSE CAPSULES AND DRY POWDER INHALERS FOR PULMONARY AND NASAL DELIVERY APPLICATIONS | STEINER , SOLOMON S. |
| <u>60141433</u> | Not Issued | 159 | 06/29/1999 | PURIFICATION AND STABILIZATION OF PEPTIDE AND PROTEIN PHARMACEUTICAL AGENTS | STEINER , SOLOMON S. |
| <u>60127699</u> | Not Issued | 159 | 04/05/1999 | METHODS FOR FINE POWDER FORMATION | STEINER , SOLOMON S. |
| <u>08847352</u> | <u>6071497</u> | 150 | 04/24/1997 | METHOD FOR DRUG DELIVERY TO THE PULMONARY SYSTEM | STEINER , SOLOMON S. |
| <u>60176853</u> | Not Issued | 159 | 01/19/2000 | MULTI-SPIKE RELEASE FORMULATION FOR DRUG DELIVERY | STEINER , SOLOMON S. |
| <u>60176845</u> | Not Issued | 159 | 01/19/2000 | DRY POWDER FORMULATIONS OF ANTIHISTAMINE FOR NASAL ADMINISTRATION | STEINER , SOLOMON S. |
| <u>60023000</u> | Not Issued | 159 | 08/02/1996 | AUTOMATED LIOPHILICITY AND STABILITY ASSAYS FOR DRUG SCREENING | STEINER , SOLOMON S. |
| <u>08207011</u> | Not Issued | 161 | 03/04/1994 | CDNA-PHOTOFUOR-PROBE AND METHODS OF MAKING, ASSAYING AND USING SAME | STEINER , SOLOMON S. |
| <u>07315393</u> | <u>4983402</u> | 250 | 02/24/1989 | ORALLY ADMINISTERABLE ANF | STEINER , SOLOMON S. |
| <u>09621092</u> | Not Issued | 071 | 07/21/2000 | UNIT DOSE CAPSULES FOR USE IN A DRY POWDER INHALER | STEINER, SOLOMON S. |
| <u>09606468</u> | <u>6444226</u> | 150 | 06/29/2000 | PURIFICATION AND STABILIZATION OF PEPTIDE AND PROTEIN PHARMACEUTICAL AGENTS | STEINER, SOLOMON S. |
| <u>60349628</u> | Not Issued | 020 | 01/18/2002 | COMPOSITIONS FOR TREATMENT OR PREVENTION OF BIOTERRORISM | STEINER, SOLOMON S. |
| <u>09766362</u> | Not Issued | 071 | 01/19/2001 | DRY POWDER FORMULATIONS OF ANTIHISTAMINE FOR NASAL ADMINISTRATION | STEINER, SOLOMON S. |
| <u>60400159</u> | Not Issued | 020 | 08/01/2002 | MODULATION OF IMMUNE RESPONSE | STEINER, SOLOMON S. |
| <u>10224676</u> | Not Issued | 030 | 08/20/2002 | METHODS FOR FINE POWDER FORMATION | STEINER, SOLOMON S. |
| <u>60406525</u> | Not Issued | 020 | 08/28/2002 | MODULATION OF IMMUNE | STEINER, |

| | | | | RESPONSE | SOLOMON S. |
|---------------------------------|--------------------------------|-----|------------|---|------------------------|
| <u>60366302</u> | Not Issued | 020 | 03/20/2002 | INHALATION APPARATUS | STEINER, SOLOMON S. |
| <u>10224761</u> | Not Issued | 041 | 08/20/2002 | PURIFICATION AND STABILIZATION OF PEPTIDE AND PROTEIN PHARMACEUTICAL AGENTS | STEINER, SOLOMON S. |
| <u>10211215</u> | Not Issued | 041 | 08/02/2002 | METHOD FOR DRUG DELIVERY TO THE PULMONARY SYSTEM | STEINER, SOLOMON S. |
| <u>09766394</u> | Not Issued | 094 | 01/19/2001 | MULTI-SPIKE RELEASE FORMULATION FOR ORAL DRUG DELIVERY | STEINER, SOLOMON S. |
| <u>60206123</u> | Not Issued | 159 | 05/22/2000 | UNIT DOSE CAPSULES AND DRY POWDER INHALERS FOR PULMONARY AND NASAL DELIVERY APPLICATIONS | STEINER, SOLOMON S. |
| <u>09543309</u> | <u>6440463</u> | 150 | 04/05/2000 | METHODS FOR FINE POWDER FORMATION | STEINER, SOLOMON S. |

Inventor Search Completed: No Records to Display.

| | Last Name | First Name |
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Inventor Name Search Result

Your Search was:

Last Name = WILSON

First Name = BRYAN

| Application# | Patent# | Status | Date Filed | Title | Inventor Name |
|---------------------------------|--------------------------------|--------|------------|---|----------------------------------|
| <u>08365790</u> | <u>6148883</u> | 150 | 09/21/1994 | WOOD TRIM SYSTEM | WILSON , BRYAN A. |
| <u>07855587</u> | <u>5348066</u> | 150 | 03/23/1992 | WOOD TRIM SYSTEM | WILSON , BRYAN A. |
| <u>09117671</u> | <u>6148584</u> | 150 | 07/31/1998 | TRIM ATTACHMENT SYSTEM | WILSON , BRYAN ALEXANDER |
| <u>60122006</u> | Not Issued | 159 | 03/01/1999 | PERMANENT LINER FOR ARTERIES AND OTHER TUBULAR VESSELS | WILSON , BRYAN HADLEY |
| <u>09351437</u> | Not Issued | 161 | 07/12/1999 | MULTI-ARRAY SENSOR AND METHOD OF IDENTIFYING EVENTS USING SAME | WILSON , BRYAN LORRAIN HUMPHREYS |
| <u>08377667</u> | <u>5712269</u> | 150 | 01/24/1995 | M2 RECEPTOR LIGAND FOR THE TREATMENT OF NEUROLOGICAL DISORDERS | WILSON , BRYAN R. |
| <u>08042872</u> | Not Issued | 166 | 04/05/1993 | M2 RECEPTOR LIGAND FOR THE TREATMENT OF NEUROLOGICAL DISORDERS | WILSON , BRYAN R. |
| <u>08042149</u> | Not Issued | 166 | 04/02/1993 | RENIN/ANGIOTENSIN I DIAGNOSTIC ASSAY | WILSON , BRYAN R. |
| <u>08555359</u> | Not Issued | 161 | 11/08/1995 | METHOD FOR FLUORESCENT LABELING OF ANTIBODY | WILSON , BRYAN R. |
| <u>08383612</u> | Not Issued | 161 | 02/02/1995 | RENIN/ANGIOTENSIN I DIAGNOSTIC ASSAY | WILSON , BRYAN R. |
| <u>60176845</u> | Not Issued | 159 | 01/19/2000 | DRY POWDER FORMULATIONS OF ANTIHISTAMINE FOR NASAL ADMINISTRATION | WILSON , BRYAN R. |
| <u>60406525</u> | Not Issued | 020 | 08/28/2002 | MODULATION OF IMMUNE | WILSON, BRYAN |

| | | | | RESPONSE | |
|-----------------|----------------|-----|------------|---|---------------------------------|
| <u>60422399</u> | Not Issued | 020 | 10/29/2002 | METHOD FOR SEPARATING AND TRANSFERRING TELEPHONE CALL DATA | WILSON, BRYAN |
| <u>09661077</u> | Not Issued | 093 | 09/13/2000 | WOOD TRIM SYSTEM | WILSON, BRYAN ALEXANDER |
| <u>09826126</u> | Not Issued | 041 | 04/04/2001 | DETECTION OF THERMALLY INDUCED TURBULENCE IN FLUIDS | WILSON, BRYAN LORRAIN HUMPHREYS |
| <u>09579636</u> | <u>6476859</u> | 150 | 05/26/2000 | THERMAL TRACKER | WILSON, BRYAN LORRAIN HUMPHREYS |
| <u>09447600</u> | <u>6462663</u> | 150 | 11/22/1999 | USE OF DETECTOR ARRAYS TO DETECT CESSATION OF MOTION | WILSON, BRYAN LORRAIN HUMPHREYS |
| <u>09766362</u> | Not Issued | 071 | 01/19/2001 | DRY POWDER FORMULATIONS OF ANTIHISTAMINE FOR NASAL ADMINISTRATION | WILSON, BRYAN R. |

Inventor Search Completed: No Records to Display.

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bryan

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Inventor Name Search Result

Your Search was:

Last Name = ILLUM

First Name = [Nothing Entered]

| Application# | Patent# | Status | Date Filed | Title | Inventor Name |
|--------------------------|-------------------------|--------|------------|---|-----------------|
| 07834296 | Not Issued | 166 | 02/18/1992 | PHARMACEUTICAL COMPOSITIONS | ILLUM , LISBETH |
| 08374671 | 5792475 | 150 | 04/14/1995 | LYMPHATIC DELIVERY COMPOSITION | ILLUM , LISBETH |
| 07842351 | Not Issued | 161 | 03/24/1992 | SMALL PARTICLE DRUG COMPOSITIONS | ILLUM , LISBETH |
| 08954018 | Not Issued | 161 | 02/24/1998 | DRUG DELIVERY COMPOSITION FOR ALPHA-ADRENO RECEPTOR BLOCKING AGENTS" | ILLUM , LISBETH |
| 08142844 | Not Issued | 166 | 10/25/1993 | ENHANCED UPTAKE DRUG DELIVERY SYSTEM HAVING MICROSPHERES CONTAINING AN ACTIVE DRUG AND A BIOAVAILABILITY IMPROVING MATERIAL | ILLUM , LISBETH |
| 07865855 | Not Issued | 166 | 04/09/1992 | ENHANCED UPTAKE DRUG DELIVERY SYSTEM | ILLUM , LISBETH |
| 09214527 | Not Issued | 161 | 04/07/1999 | COMPOSITION FOR ENHANCED UPTAKE OF POLAR DRUGS FROM MUCOSAL SURFACES | ILLUM , LISBETH |
| 09214580 | Not Issued | 041 | 03/30/1999 | GENE THERAPY DELIVERY SYSTEM FOR TARGETING TO ENDOTHELIA | ILLUM , LISBETH |
| 07743328 | Not Issued | 166 | 08/20/1991 | DRUG DELIVERY COMPOSITIONS | ILLUM , LISBETH |
| 08553401 | 5935604 | 150 | 07/01/1996 | NASAL DRUG DELIVERY COMPOSITION CONTAINING NICOTINE | ILLUM , LISBETH |
| 08214070 | Not Issued | 161 | 03/16/1994 | DIAGNOSTIC AID | ILLUM , LISBETH |
| 07956551 | Not Issued | 166 | 10/02/1992 | ADHESIVE DRUG DELIVERY COMPOSITION | ILLUM , LISBETH |

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|-----------------|----------------|-----|------------|---|-----------------|
| <u>08412094</u> | <u>5690954</u> | 150 | 03/28/1995 | ENHANCED UPTAKE DRUG DELIVERY SYSTEM HAVING MICROSPHERES CONTAINING AN ACTIVE DRUG AND A BIOAVAILABILITY IMPROVING MATERIAL | ILLUM , LISBETH |
| <u>08256431</u> | <u>5629011</u> | 150 | 07/12/1994 | COMPOSITION FOR NASAL ADMINISTRATION | ILLUM , LISBETH |
| <u>08234723</u> | <u>6355276</u> | 150 | 04/28/1994 | ADHESIVE DRUG DELIVERY COMPOSITION | ILLUM , LISBETH |
| <u>08167611</u> | <u>5554388</u> | 150 | 12/14/1993 | SYSTEMIC DRUG DELIVERY COMPOSITIONS COMPRISING A POLYCATIONI SUBSTANCE | ILLUM , LISBETH |
| <u>08190022</u> | <u>5648095</u> | 150 | 07/08/1994 | PREPARATION OF MICROPARTICLES | ILLUM , LISBETH |
| <u>07927576</u> | Not Issued | 161 | 08/10/1992 | DIAGNOSTIC AID | ILLUM , LISBETH |
| <u>08260611</u> | <u>5725871</u> | 150 | 06/15/1994 | DRUG DELIVERY COMPOSITIONS COMPRISING LYSOPHOSPHOGLYCEROLIPID | ILLUM , LISBETH |
| <u>07689926</u> | Not Issued | 166 | 07/08/1991 | ADHESIVE DRUG DELIVERY COMPOSITION | ILLUM , LISBETH |
| <u>07094673</u> | <u>4847091</u> | 150 | 09/23/1987 | PHARMACEUTICAL COMPOSITION INCLUDING SODIUM CROMOGLYCATE | ILLUM , LISBETH |
| <u>09011306</u> | <u>6200602</u> | 150 | 03/30/1998 | COMPOSITION FOR ENHANCED UPTAKE OF POLAR DRUGS FROM THE COLON | ILLUM , LISBETH |
| <u>09000039</u> | Not Issued | 161 | 03/30/1998 | LIPID VEHICLE DRUG DELIVERY COMPOSITION CONTAINING VITAMIN E | ILLUM , LISBETH |
| <u>08963432</u> | <u>6054462</u> | 150 | 11/03/1997 | INTRANASAL ANTIMIGRAINE COMPOSITIONS | ILLUM , LISBETH |
| <u>08899976</u> | <u>5863554</u> | 150 | 07/24/1997 | ENHANCED UPTAKE DRUG DELIVERY SYSTEM | ILLUM , LISBETH |
| <u>08809158</u> | <u>5840341</u> | 150 | 04/21/1997 | DRUG DELIVERY COMPOSITION CONTAINING CHITOSAN OR DERIVATIVE THEREOF HAVING A DEFINED Z. POTENTIAL | ILLUM , LISBETH |
| <u>08718529</u> | Not Issued | 166 | 10/08/1996 | INTRANASAL ANTIMIGRAINE COMPOSITION | ILLUM , LISBETH |
| <u>07469443</u> | <u>5204108</u> | 150 | 04/09/1990 | TRANSMUCOSAL FORMULATIONS OF LOW MOLECULAR WEIGHT PEPTIDE DRUGS | ILLUM , LISBETH |
| <u>09096035</u> | Not | 161 | 06/11/1998 | DRUG DELIVERY COMPOSITION | ILLUM , |

| | | | | | |
|-----------------|----------------|-----|------------|--|-----------------|
| | Issued | | | CONTAINING CHITOSAN OR DERIVATIVE THEREOF HAVING A DEFINED Z. POTENTIAL | LISBETH |
| <u>09094959</u> | <u>5928669</u> | 150 | 06/15/1998 | LYMPHATIC DELIVERY COMPOSITION | ILLUM , LISBETH |
| <u>09088185</u> | <u>6391318</u> | 150 | 06/01/1998 | VACCINE COMPOSITIONS FOR INTRANASAL ADMINISTRATION COMPRISING CHITOSAN AND USE THEREOF | ILLUM , LISBETH |
| <u>08553716</u> | Not Issued | 125 | 01/29/1996 | DRUG DELIVERY COMPOSITION FOR ALPHA-ADRENO RECEPTOR BLOCKING AGENTS | ILLUM , LISBETH |
| <u>07424320</u> | Not Issued | 166 | 11/20/1989 | ENHANCED UPTAKE DRUG DELIVERY SYSTEM | ILLUM , LISBETH |
| <u>09341546</u> | <u>6465626</u> | 150 | 08/18/1999 | PHARMACEUTICAL COMPOSITIONS OF CHITOSAN WITH TYPE-A GELATIN | ILLUM , LISBETH |
| <u>09059646</u> | <u>6387408</u> | 150 | 04/13/1998 | ADHESIVE DRUG DELIVERY COMPOSITION | ILLUM , LISBETH |
| <u>08776470</u> | Not Issued | 161 | 03/28/1997 | DRUG DELIVERY COMPOSITION FOR THE NASAL ADMINISTRATION OF ANTIVIRAL AGENTS | ILLUM , LISBETH |
| <u>07004189</u> | <u>4904479</u> | 150 | 01/15/1987 | DRUG DELIVERY SYSTEM | ILLUM , LISBETH |
| <u>09214561</u> | Not Issued | 161 | 04/07/1999 | COMPOSITIONS SUITABLE FOR DELIVERY OF GENES TO EPITHELIAL CELLS | ILLUM , LISBETH |
| <u>09475680</u> | <u>6310089</u> | 150 | 12/30/1999 | COMPOSITION FOR THE ADMINISTRATION OF A D1-AGONISTS | ILLUM, LISBETH |
| <u>09848600</u> | Not Issued | 041 | 05/03/2001 | DRUG DELIVERY COMPOSITION FOR THE NASAL ADMINISTRATION OF ANTIVIRAL AGENTS | ILLUM, LISBETH |
| <u>09834312</u> | Not Issued | 041 | 04/13/2001 | NOVEL FORMULATIONS OF FEXOFENADINE | ILLUM, LISBETH |
| <u>09521141</u> | Not Issued | 161 | 03/08/2000 | CONTROLLED RELEASE MICROSPHERE DELIVERY SYSTEM | ILLUM, LISBETH |
| <u>09920698</u> | Not Issued | 161 | 01/01/0001 | COMPOSITIONS FOR NASAL ADMINISTRATION | ILLUM, LISBETH |
| <u>09586139</u> | <u>6342251</u> | 150 | 06/02/2000 | COMPOSITIONS FOR NASAL ADMINISTRATION | ILLUM, LISBETH |
| <u>09944291</u> | Not | 041 | 08/31/2001 | POLYMER COMPOSITIONS FOR | ILLUM, |

| | Issued | | | POLYNUCLEOTIDE DELIVERY | LISBETH |
|-----------------|------------|-----|------------|--|-------------------|
| <u>09619400</u> | Not Issued | 161 | 07/19/2000 | NOVEL DOSAGE FORM | ILLUM, LISBETH |
| <u>09692088</u> | 6387917 | 150 | 10/19/2000 | SALTS OF OPIOID ANALGESICS, PARTICULARLY MORPHINE, AND METHODS OF USING SAME | ILLUM, LISBETH |
| <u>09841228</u> | Not Issued | 041 | 04/24/2001 | NASAL DRUG DELIVERY COMPOSITION | ILLUM, LISBETH |
| <u>10141312</u> | Not Issued | 030 | 05/08/2002 | VACCINE COMPOSITIONS INCLUDING CHITOSAN FOR INTRANASAL ADMINISTRATION AND USE THEREOF | ILLUM, LISBETH |
| <u>10196590</u> | Not Issued | 020 | 07/15/2002 | DELIVERY OF DRUGS TO MUCOSAL SURFACES | ILLUM, LISBETH |

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